

# Mathematics Planning National Curriculum 2022

Year 3

### **Key Principles:**

The curriculum builds on prior learning with progression throughout the school. Consideration is given to the order in which knowledge is taught so that children can relate their learning to previous learning. There are key concepts that children must know by the end of year 6 – these are the 'nuggets' of learning in this subject (sticky knowledge, components). Recall opportunities relating to the key concepts are built into the planning regularly so that children retain these 'nuggets' so that they 'know more, remember more and can do more'.

### **How to Use the Medium Term Planning**

This planning document is intended to provide planning support to meet all statutory requirements of the National Curriculum and to aid teachers in planning a progressive learning journey for children within Year 3.

### **Overview Documents**

This document starts with the mathematics skills and the coverage of each strand across the entire year of planning. Teachers and TAs can use this to plan mixed starters in order to pre-teach, consolidate learning or as revision, as well as guidance for day-to-day planning, assessment (linked to ScholarPack) and establishing how long until a topic will next be revisited or if additional lessons to achieve the skill are necessary.

	Coverage						
Aut1	Aut2	Spri	Spr2	Sum 1	Sun2		
	W1	W1 W5		W1	W1		
					WI		
WI					WI		
W2		W1			W1		
WI					W1		
WI					W1		
W1							
Coverage							
Aut1	Aut2	Spr1	<u>5pr2</u>	Sum1	Sum2		
W2							
W3		W1		W2	W2		
W4							
WS							
W6			WZ	W2			
WS			14/2	wa			
WS			142	.42			
	W1 W2 W1 W1 W1 W1 W2 W3 W4 W5 W6 W5	W1 W2 W1 W1 W1 W1 W2 W2 W2 W2 W2 W3 W4 W4 W5 W5 W5	Aut	Marci	Anni		

Year 3 Mathematics Yearly Overview

	Autumn I	Autumn 2	Spring I	Spring 2	Summer I	Summer 2
Week I	Place value	Counting Multiplication tables (3x, 4x)	Place value Mental addition and subtraction	2D and 3D shape incl. sorting	Multiplication facts (statistics)	Place value (measures)
Week 2	Place value and mental calculation	Written and mental multiplication	Fractions	Addition and subtraction (statistics)	Addition and subtraction (measures)	Mental calculation
Week 3	2D shape Length incl. perimeter	Written and mental division	Fractions Division	Fractions	Multiplication and division (measures)	Fractions
Week 4	Statistics Mental calculation	Time	Volume and capacity Mass	Position and direction	2D shape incl. sorting	Measures
Week 5	Written addition	3D shape	Multiplication incl. 8x table	<u>Time</u>	Decimals Addition and subtraction (money)	Statistics
Week 6	Written subtraction	Assess and review week	Multiplication (statistics, measures, money)	Assess and review week	3D shape incl. sorting	Assess and review week

'Ctrl' and clicking on each week will take you to the associated Half Termly Planning, outlining the focus area for each week in more detail.

This is followed by an overview document. This identifies six half termly blocks of six weeks with focus areas of mathematics for each week. The units are designed to be cohesive and allow for application of learning and skills across the mathematics curriculum. The 'assess and review' weeks can be used to gain information for teacher assessments or can be used to pick up elements that need further support. It is not designed to be used as an entire week of testing with no teaching. This is a suggested layout and teachers should adapt to meet the needs of their class as required.

### **Half Termly Planning Documents**

The half termly planning documents have been compiled to the following principles:

- Each half term is predominantly learning about number.
- Almost all weeks are focused on one area of mathematics, giving children time to focus on a single area for a longer amount
  of time.
- The 'knowledge' explains the understanding the child will need to achieve the skills. This also explains why specific skills have been put together and how to enhance the teaching and learning during that week, e.g. number work is often given a context of data, measures, money or problem solving.
- The skills are the end of year expectations and it is the decision of teachers whether to visit the whole objective more than once throughout the year or to organise progression within each objective.
- · Every skill is covered at least twice within the year.

### **Adaptive teaching**

At Brettenham, we help children develop their conceptual understanding of mathematics by using concrete objects, pictorial representations and abstract thinking, therefore if a child is struggling with a particular abstract concept, we adapt and take a step back to concrete or pictorial, providing them with resources to enable them to understand. As the objectives in the yearly plans are based on age related expectations, children who may struggle to reach the objectives independently will be provided with scaffolds to provide extra support. Scaffolding supports mathematical understanding by providing the necessary support in applying new information. These approaches help children achieve in lessons which they would not be able to on their own.

### **Progression**

The planning documents are followed by a table showing skill progression from Early Years to Year 6. This can be used to establish and build upon previous knowledge, see where children's learning is heading and to also easily identify and fill any gaps in their knowledge.

	Addition, subtraction, multiplication and division (calculations)							
Strand	Early Years outcomes	National Curriculum reference Year 1	National Curriculum reference Year 2	National Curriculum reference Year 3	National Curriculum reference Year 4	National Curriculum reference Year 5	National Curriculum reference Year 6	
C1 Add / subtract		1C1 Represent and use number bonds and related subtraction facts within 20	2C1a Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100	3C1 Add and subtract numbers mentally, including: - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds		5C1 Add and subtract numbers mentally with increasingly large numbers		
mentally			Add and subtract numbers mentally, including:  - a two-digit number and ones  - a two-digit number and tens  - two two-digit numbers  - adding three one-digit numbers					
	40 – 60 months To find the total of items in	1C2a	2C2 Add and subtract numbers	3C2 Add and subtract numbers	4C2 Add and subtract numbers	5C2		

### **National Curriculum Documentation**

At the end of this document is the National Curriculum programme of study for Year 3. This contains the skills for Year 3 along with the non-statutory guidance to help with interpretation.

# Yearly skills and coverage for Year 3 Mathematics

With links to the Content Domain

Number - number and place value			Cove	erage		
	Aut1	Aut2	Spr1	Spr2	Sum1	Sum2
(3N1b) Count from 0 in multiples of 4, 8, 50 and 100		W1	W1 W5		W1	W1
(3N2a) Compare and order numbers up to 1000	W1					W1
(3N2a) Read and write numbers up to 1000 in numerals and in words	VVI					VVI
( <u>3N2b</u> ) Find 10 or 100 more or less than a given number	W2		W1			W1
(3N3) Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)	W1					W1
(3N4) Identify, represent and estimate numbers using different representations	W1					W1
(3N6) Solve number problems and practical problems involving 3N1 - 3N4	W1					
Number - addition and subtraction (calculations)	Aut1	Aut2	Cove	erage Spr2	Sum1	Sum2
(3C1) Add and subtract numbers mentally, including three-digit number and ones	W2					
(3C1) Add and subtract numbers mentally, including three-digit number and tens	W3		W1		W2	W2
(3C1) Add and subtract numbers mentally, including three-digit number and hundreds	W4					
(3C2) Add and subtract numbers with up to three digits, using formal written methods of columnar	W5					
addition and subtraction	W6			W2	W2	
(3C3) Estimate the answer to a calculation and use inverse operations to check answers	W5 W6			W2	W2	
( <u>3C4</u> ) Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	W5 W6			W2	W2	
			Cove	erage		
Number - multiplication and division (calculations)	Aut1	Aut2	Spr1	Spr2	Sum1	Sum2
(3C6) Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	W1		W5		W1 W3	W2
(3C7) Write and calculate mathematical statements for multiplication and division using the multiplication			W3			
tables that they know, including for two-digit numbers times one-digit numbers, using mental and		W2	W5		W3	
progressing to formal written methods		W3	W6			
(3C8) Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m		W2	W6		W2	
objects		W3			VVZ	
<u>Number - fractions</u>	Aut1	Aut2		erage	Sum1	S
(3F1a) Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts	Auti	Autz	Spr1	Spr2	Sum1	Sum2
and in dividing one-digit numbers or quantities by 10					W5	
( <u>3F1b</u> ) Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators			W2 W3			W3
( <u>3F1c</u> ) Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators			W2			W3
(3F2) Recognise and show, using diagrams, equivalent fractions with small denominators				W3		W3
(3F3) Compare and order unit fractions, and fractions with the same denominators				W3		
(3F4) Add and subtract fractions with the same denominator within one whole [for example, $5/7 + 1/7 = 6/7$ ]				W3		
(3F10) Solve problems that involve 3F1 - 3F4				W3		
(ST10) Solve problems that involve St1 St4			Cove	erage		
<u>Measurement</u>	Aut1	Aut2	Spr1	Spr2	Sum1	Sum2
(3M1a) Compare lengths (m/cm/mm)	W3	···	<u> </u>	<u> </u>	W2	W4
(3M1b) Compare mass (kg/g)			W4		W2	W4
(3M1c) Compare volume/capacity (I/ml)			W4		W2	W4
(3M2a) Measure lengths (m/cm/mm)	W3				W2	W4
(3M2b) Measure mass (kg/g)			W4		W2	W4
(3M2c) Measure volume/capacity (I/ml)			W4		W2	W4
(3M4a) Tell and write the time from an analogue clock; 12-hour clocks		W4		W5		
(3M4b) Tell and write the time from an analogue clock; 24-hour clocks		W4		W5		
(3M4c) Tell and write the time from an analogue clock, including using Roman numerals from I to XII		W4		W5		
(Sing Formation write the time from an analogue clock, including using Nothan Humerals from LOAN		VV- <del>4</del>		003		

(3M4d) Estimate and read time with increasing accuracy to the nearest minute; record and compare time								
in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon,		W4		W5				
noon and midnight								
(3M4e) Know the number of seconds in a minute and the number of days in each month, year and leap		W4		W5				
year		VV4		VV5				
( <u>3M4f</u> ) Compare durations of events [for example to calculate the time taken by particular events or tasks]				W5				
(3M7) Measure the perimeter of simple 2-D shapes	W3				W2	W4		
( <u>3M9a</u> ) Add and subtract amounts of money to give change, using both £ and p in practical contexts								
(3M9b) Add and subtract lengths (m/ cm/ mm)	W3				W2	W4		
(3M9c) Add and subtract mass (kg/g)			W4		W2	W4		
(3M9d) Add and subtract volume/ capacity (I/ mI)			W4		W2	W4		
Coometry properties of change			Coverage					
Geometry - properties of change								
Geometry - properties of shapes	Aut1	Aut2	Spr1	Spr2	Sum1	Sum2		
Geometry - properties of shapes  (3G2) Identify horizontal and vertical lines and pairs of perpendicular and parallel lines	Aut1	Aut2 W5		<u>Spr2</u> W1	Sum1 W4	Sum2		
	Aut1 W3					Sum2		
(3G2) Identify horizontal and vertical lines and pairs of perpendicular and parallel lines		W5		W1 W1	W4 W4	Sum2		
(3G2) Identify horizontal and vertical lines and pairs of perpendicular and parallel lines (3G3a) Draw 2-D shapes				W1	W4	Sum2		
(3G2) Identify horizontal and vertical lines and pairs of perpendicular and parallel lines (3G3a) Draw 2-D shapes (3G3b) Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and		W5		W1 W1	W4 W4	Sum2		
(3G2) Identify horizontal and vertical lines and pairs of perpendicular and parallel lines (3G3a) Draw 2-D shapes (3G3b) Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them		W5		W1 W1 W1	W4 W4 W6 W4	Sum2		
(3G2) Identify horizontal and vertical lines and pairs of perpendicular and parallel lines (3G3a) Draw 2-D shapes (3G3b) Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them (3G4a) Recognise that angles are a property of shape or a description of a turn		W5		W1 W1 W1 W1	W4 W4 W6	Sum2		
(3G2) Identify horizontal and vertical lines and pairs of perpendicular and parallel lines (3G3a) Draw 2-D shapes (3G3b) Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them (3G4a) Recognise that angles are a property of shape or a description of a turn (3G4b) Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle		W5	Spr1	W1 W1 W1 W1	W4 W4 W6 W4	Sum2		
(3G2) Identify horizontal and vertical lines and pairs of perpendicular and parallel lines (3G3a) Draw 2-D shapes (3G3b) Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them (3G4a) Recognise that angles are a property of shape or a description of a turn (3G4b) Identify right angles, recognise that two right angles make a half-turn, three make three quarters of		W5	Spr1	W1 W1 W1 W1 W1 W1 W1 W4	W4 W4 W6 W4	Sum2		
(3G2) Identify horizontal and vertical lines and pairs of perpendicular and parallel lines (3G3a) Draw 2-D shapes (3G3b) Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them (3G4a) Recognise that angles are a property of shape or a description of a turn (3G4b) Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle	W3	W5	Spr1 Cove	W1 W1 W1 W1 W1 W1 w4 erage	W4 W4 W6 W4 W4			
(3G2) Identify horizontal and vertical lines and pairs of perpendicular and parallel lines (3G3a) Draw 2-D shapes (3G3b) Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them (3G4a) Recognise that angles are a property of shape or a description of a turn (3G4b) Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle	W3	W5	Spr1 Cove	W1 W1 W1 W1 W1 W1 w4 erage	W4 W4 W6 W4 W4 W4	Sum2		

# Year 3 Mathematics Yearly Overview

	Autumn I	Autumn 2	Spring I	Spring 2	Summer I	Summer 2
Week I	<u>Place value</u>	Counting Multiplication tables (3x, 4x)	Place value Mental addition and subtraction	2D and 3D shape incl. sorting	Multiplication facts (statistics)	<u>Place value</u> (measures)
Week 2	Place value and mental calculation	Written and mental multiplication	<u>Fractions</u>	Addition and subtraction (statistics)	Addition and subtraction (measures)	<u>Mental</u> <u>calculation</u>
Week 3	2D shape Length incl. perimeter	Written and mental division	Fractions Division	<u>Fractions</u>	Multiplication and division (measures)	<u>Fractions</u>
Week 4	Statistics Mental calculation	<u>Time</u>	Volume and capacity Mass	Position and direction	2D shape incl. sorting	<u>Measures</u>
Week 5	Written addition	3D shape	Multiplication incl. 8x table	<u>Time</u>	Decimals Addition and subtraction (money)	<u>Statistics</u>
Week 6	Written subtraction	Assess and review week	Multiplication (statistics, measures, money)	Assess and review week	3D shape incl. sorting	Assess and review week

		Year 3 Autumn I	
	Links to Content Domain	Skills	Knowledge
<b>Week 1</b> Place value	3N2a 3N3 3N4 3N2a 3N6	<ul> <li>Read and write numbers up to 1000 in numerals and in words.</li> <li>Recognise the place value of each digit in a three-digit number (hundreds, tens and ones).</li> <li>Partition numbers in different ways.</li> <li>Identify, represent and estimate numbers using different representations, including the number line.</li> <li>Compare and order numbers up to 1000.</li> <li>Round numbers to at least 1000 to the nearest 10 or 100.</li> <li>Solve number problems and practical problems involving these ideas.</li> </ul>	Understanding of the number system is necessary pre-requisite knowledge for any number work. Children should understand the Base 10 notion in which there are 10 numerals (0-9) and these can be organised in different ways to form any number. This is based on grouping in tens i.e. ten 1s are the same as one 10; ten 10s are the same as one 100; ten 100s are the same as one 1000 and so on. And vice versa. Partitioning numbers in different ways is an objective from Year 2, but requires consolidating to support later work on calculations. When comparing and ordering numbers,
Week 2 Place value and mental calculation	3N2b 3C1	<ul> <li>Find I, 10 or 100 more or less than a given number.</li> <li>Add numbers mentally, including: a three-digit number and ones; and tens; and hundreds.</li> <li>Subtract numbers mentally, including: a three-digit number and ones; and tens; and hundreds.</li> <li>Add and subtract mentally combinations of two-digit numbers.</li> <li>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method).</li> <li>Select a mental strategy appropriate for the numbers involved in the calculation.</li> </ul>	children should use a variety of resources, including the number line.  Children apply their knowledge of place value to mentally calculate using addition and subtraction, recognising which digits will change and which will stay the same and why.  Children should continue to count in ones, tens and hundreds.  Children should also mentally calculate with two-digit numbers in which the answer is a three-digit number.
Week 3 2-D shape, place value, measures, mental calculation in context of length	3G3a 3M1a 3M2a 3M9b 3M7 3C1	<ul> <li>Understand and use take away and difference for subtraction, deciding on the most efficient method for the numbers involved, irrespective of context.</li> <li>Draw 2-D shapes and describe them.</li> <li>Recognise angles as a property of shape.</li> <li>Measure, compare, add and subtract: lengths (m/cm/mm).</li> <li>Understand that perimeter is a measure of distance around the boundary of a shape.</li> <li>Measure the perimeter of simple 2-D shapes.</li> <li>Derive and use addition and subtraction facts for 100.</li> <li>Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul> <li>a 2-digit number and ones</li> <li>a 2-digit numbers</li> <li>two 2-digit numbers</li> </ul> </li> </ul>	Children measure distances using a variety of tools and units and record these measurements in preparation for the following week. They measure and draw 2-D shapes. This gives children the opportunity to apply their place value and mental calculation knowledge in the context of length. Perimeter is a measure of distance linking length with mental addition and the opportunity to problem solve in context. Children should use mixed units e.g. 4m and 34cm and know simple equivalence between units.
Week 4 Present, interpret, mentally calculate in context of tables and bar charts	3S1 3S2 3C1	<ul> <li>adding three I-digit numbers.</li> <li>Select a mental strategy appropriate for the numbers involved in the calculation.</li> <li>Understand and use take away and difference for subtraction, deciding on the most efficient method for the numbers involved, irrespective of context.</li> <li>Interpret and present data using bar charts and tables.</li> <li>Solve one-step and two-step questions (for example, 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and tables.</li> <li>Derive and use addition and subtraction facts for 100.</li> <li>Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul> <li>a 2-digit number and ones</li> <li>a 2-digit number and tens</li> <li>two 2-digit numbers</li> <li>adding three I-digit numbers.</li> </ul> </li> <li>Select a mental strategy appropriate for the numbers involved in the calculation.</li> </ul>	The tables and bar charts can be created from measurements taken the previous week. Children are applying their knowledge of place value and mental calculation in the context of tables and bar charts.
Week 5 Written addition	3C2 3C3 3C4	<ul> <li>Understand and use take away and difference for subtraction, deciding on the most efficient method for the numbers involved, irrespective of context.</li> <li>Add numbers with up to three digits, using formal written method of columnar addition.</li> <li>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method).</li> <li>Estimate the answer to a calculation and use inverse operations to check the answers.</li> <li>Solve problems, including missing number problems, using number facts, place value, and more complex addition.</li> </ul>	Children build on their understanding of place value and skills in mental calculation to develop a written method for addition.  Written methods should be agreed by the school and shared in the progression in written calculations policy. Efficient written methods are required to be taught by the end of Key Stage 2.
Week 6	<u>3C2</u>	Subtract numbers with up to three digits, using formal written method of columnar subtraction.	Children build on their understanding of place value and skills in mental calculation to develop a written method for subtraction.

Written		<ul> <li>Choose an appropriate strategy to solve a calculation based upon the</li> </ul>	
subtraction		numbers involved (recall a known fact, calculate mentally, use a jotting, written method).	Written methods should be agreed by the school and shared in the progression in written
	<u>3C3</u>	Estimate the answer to a calculation and use inverse operations to check the answers.	calculations policy. Efficient written methods are required to be taught by the end of Key Stage 2
	<u>3C4</u>	Solve problems, including missing number problems, using number facts, place value, and more complex subtraction.	

		Year 3 Autumn 2	
	Links to Content Domain	Skills	Knowledge
Week 1 Counting, sequences, multiplication facts	3N1b 3C6	<ul> <li>Count from 0 in multiples of 4.</li> <li>Recall and use multiplication and division facts for the 3 and 4 times tables.</li> <li>Describe and extend number sequences involving counting on or back in different steps.</li> <li>Use sorting diagrams to compare and sort numbers.</li> </ul>	Children need time to experience counting in equal steps, and multiplication and division facts and relationships so that they understand and can use this knowledge in a variety of situations.  Children should be using Venn and Carroll diagrams to sort numbers according to their properties.  The learning in this week is in preparation for the next week.
Week 2 Written and mental multiplication	<u>3C7</u>	<ul> <li>Write and calculate mathematical statements for multiplication using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.</li> <li>Select a mental strategy appropriate for the numbers involved in the calculation.</li> <li>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> <li>Solve problems involving money and measures.</li> <li>Solve problems, including missing number problems involving multiplication, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.</li> </ul>	Children build on their understanding of place value and multiplication facts to develop mental strategies for multiplication and begin developing a written method. Children should learn when to use mental methods and when to use written methods.  Written methods should be agreed by the school and shared in the progression in written calculations policy. Efficient written methods are required to be taught by the end of Key Stage 2.  Integer scaling problems support children in understanding multiplication as making amounts a number of times larger, which is different to understanding as repeated addition.  Correspondence problems, such as, 3 different coloured hats and 3 different coloured coats would give how many different possible combinations, allow children to spot patterns and generalise using their knowledge of multiplication facts.
Week 3 Written and mental division	3C7 3C8	<ul> <li>Write and calculate mathematical statements for division using the multiplication tables that they know, including for two-digit numbers divided by one-digit numbers, using mental and progressing to formal written methods.</li> <li>Select a mental strategy appropriate for the numbers involved in the calculation.</li> <li>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> <li>Solve problems involving money and measures.</li> <li>Solve problems, including missing number problems, involving division (and interpretting remainders) and correspondence problems in which n objects are connected to m objects.</li> </ul>	Children build on their understanding of place value and multiplication facts to develop mental strategies for division and begin developing a written method. Children should learn when to use mental methods and when to use written methods.  Written methods should be agreed by the school and shared in the progression in written calculations policy. Efficient written methods are required to be taught by the end of Key Stage 2.  Correspondence problems, such as, 12 sweets shared equally between 4 children.
Week 4 Time	3M4a 3M4b 3M4c 3M4d 3M4d 3M4d	<ul> <li>Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and I2-hour and 24-hour clocks.</li> <li>Estimate and read time with increasing accuracy to the nearest minute.</li> <li>Record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight.</li> <li>Know the number of seconds in a minute and the number of days in each month, year and leap year.</li> <li>Solve simple problems involving passage of time.</li> </ul>	Children learn the relationships between the units of time, and other key vocabulary involving time. Children learn to tell the time (including on clocks where the numbers are Roman numerals) and on digital clocks, using 12 and 24 hour clock notation. The learning in this week requires regular revisiting through natural daily activities and routines.
Week 5 3-D shape	3G3b 3G3b 3G2	<ul> <li>Make 3-D shapes using modelling materials.</li> <li>Recognise 3-D shapes in different orientations and describe them.</li> <li>Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</li> <li>Compare and sort common 3-D shapes and everyday objects. (Year 2 objective)</li> </ul>	Children further develop their knowledge of 3-D shapes. When making shapes, children are experiencing what faces, edges and vertices 'feel' like and should be encouraged to use this vocabulary as they work. The vocabulary develops to include parallel and perpendicular, relating their knowledge of right angles to describing the position of lines or edges relative to each other.  The development of new vocabulary should be applied when sorting and comparing shapes.
Week 6		Assess and review week	It is useful at regular intervals for teachers to consider the learning that has taken place over a term (or half term), assess and review children's understanding of the learning and use this to inform where the children need to go next.

	Year 3 Spring I				
	Links to Content Domain	Skills	Knowledge		
Week 1 Place value, counting and mental addition and subtraction	3N2b 3C1	<ul> <li>Find 1, 10 or 100 more or less than a given number.</li> <li>Count from 0 in multiples of 50 and 100.</li> <li>Describe and extend number sequences involving counting on or back in different steps.</li> <li>Add and subtract mentally: <ul> <li>a three-digit number and ones</li> <li>a three-digit number and tens</li> <li>a three digit number and hundreds.</li> </ul> </li> <li>Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul> <li>a 2-digit number and ones</li> <li>a 2-digit number and tens</li> <li>two 2-digit numbers. (Year 2 objective)</li> </ul> </li> <li>Select a mental strategy appropriate for the numbers involved in the calculation.</li> <li>Understand and use take away and difference for</li> </ul>	It is useful to begin a term with learning related to place value, as further learning in the term will be reliant on secure understanding of the number system. The place value work in this week is in the context of sequences and calculation. Children should continue to count in ones, tens and hundreds.  Children should also mentally calculate with two-digit numbers in which the answer is a three-digit number.		
		subtraction, deciding on the most efficient method for the numbers involved, irrespective of context.  • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.			
Week 2 Fractions	<u>3F1c</u>	Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.      Understand that finding a fraction of an amount relates to division.	The learning of fractions is an extension in understanding of the number system. Learning how to calculate fractions of amounts by sharing in practical contexts, is a valuable experience before making the link to division. Children's		
	<u>3F1b</u>	<ul> <li>Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.</li> <li>Show practically or pictorially that a fraction is one whole number divided by another (for example, <sup>3</sup>/<sub>4</sub> can be interpreted as 3 ÷ 4).</li> </ul>	understanding of fractions should go beyond the 0-1 interval.		
Week 3		Understand that finding a fraction of an amount relates to	Children build on their understanding of fractions of shapes,		
Fractions and written and mental division	<u>3F1b</u>	<ul> <li>division.</li> <li>Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.</li> <li>Understand how division statements can be represented using arrays.</li> <li>Understand division as sharing and grouping and use each appropriately.</li> <li>Select a mental strategy appropriate for the numbers involved in the calculation.</li> <li>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate</li> </ul>	using these shapes when sharing items into equal groups. The link between finding fractions of amounts and division is made.  When children are calculating fractions of amounts, this should be in a context e.g. length, money, time to consolidate previous learning.  When finding fractions of amounts, children need to understand that this is division by sharing.		
	<u>3C7</u>	degree of accuracy.     Write and calculate mathematical statements for division using the multiplication tables that they know, including for two-digit numbers divided by one-digit numbers, using mental and progressing to formal written methods.			
Week 4 Measures and calculation in the context of volume and capacity and mass	3M1c 3M2c 3M9d 3M1b 3M2b 3M9c	<ul> <li>Measure, compare, add and subtract volumes and capacities.</li> <li>Measure, compare, add and subtract masses.</li> <li>Solve problems involving and measures.</li> </ul>	Children gain valuable practical experience of volume and capacity, and learn to understand the difference between the two. At this stage, volume refers to the amount of liquid within a container, and capacity is the maximum amount of liquid a container can hold. Both therefore are measured in I and ml. Children should develop an understanding of a 'benchmark' for estimating volume/capacity e.g. a can of fizzy drink is 330ml.  Practical experiences should also further children's knowledge and understanding of mass, including the units of gram (g) and kilogram (kg), and they should develop an understanding of a 'benchmark' mass of a common familiar object e.g. a bag of sugar having a mass of I kg.  Children should call upon their knowledge of place value and calculations in the context of measurement.		
Week 5 Counting, sequences, multiplication facts, mental and written multiplication	3N1b 3C6	<ul> <li>Count from 0 in multiples of 8.</li> <li>Recall and use multiplication and division facts for the 8 multiplication tables.</li> <li>Use sorting diagrams to compare and sort numbers.</li> <li>Describe and extend number sequences involving counting on or back in different steps.</li> <li>Write and calculate mathematical statements for</li> </ul>	Children build on their knowledge of the 4 times table to derive the 8 times table, recognising the relationship between the answers in both.  Written methods should be agreed by the school and shared in the progression in written calculations policy. Efficient written methods are required to be taught by the end of Key		
		multiplication using the multiplication tables that they know, including for two-digit numbers times one-digit	Stage 2.		

		numbers, using mental and progressing to formal written methods.  • Select a mental strategy appropriate for the numbers involved in the calculation.  • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	
Week 6 Mental and written multiplication, in the context of pictograms, measurements and money.	3C7 3C8	<ul> <li>Write and calculate mathematical statements for multiplication using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.</li> <li>Select a mental strategy appropriate for the numbers involved in the calculation.</li> <li>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> <li>Solve problems involving money and measures.</li> <li>Solve problems, including missing number problems involving multiplication, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.</li> </ul>	Children are introduced to pictograms in which each symbol is worth more than I. They use their knowledge of multiplication and counting in equal steps to calculate in the context of pictograms. Other opportunities to consolidate measurement and money should be taken when asking children to calculate.  Written methods should be agreed by the school and shared in the progression in written calculations policy. Efficient written methods are required to be taught by the end of Key Stage 2.

		Year 3 Spring 2	
	Links to Content Domain	Skills	Knowledge
Week 1 2-D and 3-D shape including angles.	3G3a 3G3b 3G3b 3G4a 3G4b 3G2	<ul> <li>Draw 2-D shapes and describe them.</li> <li>Make 3-D shapes using modelling materials.</li> <li>Recognise 3-D shapes in different orientations and describe them.</li> <li>Recognise that angles area property of a shape or a description of a turn.</li> <li>Identify whether angles are greater than or less than a right angle.</li> <li>Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</li> <li>Compare and sort common 2-D and 3-D shapes and everyday objects. (Year 2 objective)</li> </ul>	Children revisit their learning of the properties of 2-D and 3-D shape, drawing and making shapes in different ways e.g. drawing 2-D shapes on dotted paper; using set squares; creating 2-D shapes by combining other shapes; creating 3-D shapes using straws and plasticine; Clixi, Polydron or other construction materials.  The emphasis of the learning should be on children's accurate use of language when making, identifying, describing, comparing and sorting shapes.
Week 2 Written addition and subtraction in the context of bar charts, pictograms and tables	3C2 3C2 3C3 3C4 3S2	<ul> <li>Add numbers with up to three digits, using formal written method of columnar addition.</li> <li>Subtract numbers with up to three digits, using formal written method of columnar subtraction.</li> <li>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method).</li> <li>Understand and use take away and difference for subtraction, deciding on the most efficient method for the numbers involved, irrespective of context.</li> <li>Estimate the answer to a calculation and use inverse operations to check the answers.</li> <li>Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</li> <li>Solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables.</li> </ul>	Children further develop their understanding of addition and subtraction. Rehearsing the processes involved in written methods and exploring their relationship when solving missing number problems.  The calculation problems are within the context of handling data.  Written methods should be agreed by the school and shared in the progression in written calculations policy. Efficient written methods are required to be taught by the end of Key Stage 2.
Week 3 Fractions	3F2 3F4 3F3 3F10	<ul> <li>Recognise and show, using diagrams, equivalent fractions with small denominators.</li> <li>Add and subtract fractions with the same denominator within one whole (using diagram) (for example, <sup>5</sup>/<sub>7</sub> + <sup>1</sup>/<sub>7</sub> = <sup>6</sup>/<sub>7</sub>).</li> <li>Show practically or pictorially that a fraction is one whole number divided by another (for example, <sup>3</sup>/<sub>4</sub> can be interpreted as 3 ÷ 4).</li> <li>Compare and order unit fractions and fractions with the same denominators (including on a number line).</li> <li>Solve problems involving fractions.</li> </ul>	Children build on their knowledge of fractions of shapes when moving into dealing with fractions as abstract numbers.  When calculating and ordering fractions, children relate the fraction number to fraction shapes.  Children's understanding of fractions should go beyond the 0-1 interval.
Week 4 Position and direction	3G4b	Use mathematical vocabulary to describe position, direction and movement, including distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise), and movement in a straight line. (Year 2 objective)  Describe positions on a square grid labelled with letters and numbers.	There is no additional learning for Geometry: position and direction in Year 3 so it is important that the learning from Year 2 is consolidated and the precursor learning for coordinates is in place.
Week 5 Time	3M4a 3M4b 3M4c 3M4d 3M4d 3M4d 3M4e	<ul> <li>Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and I2-hour and 24-hour clocks.</li> <li>Estimate and read time with increasing accuracy to the nearest minute.</li> <li>Record and compare time in terms of seconds, minutes and hours; use vocabulary such as, o'clock, a.m./p.m., morning, afternoon, noon and midnight.</li> <li>Know the number of seconds in a minute and the number of days in each month, year and leap year.</li> <li>Compare durations of events, for example to calculate the time taken by particular events or tasks.</li> <li>Solve simple problems involving passage of time.</li> </ul>	Children learn the relationships between the units of time, and other key vocabulary involving time. Children learn to tell the time (including on clocks where the numbers are Roman numerals) and on digital clocks, using 12 and 24 hour clock notation. The learning in this week requires regular revisiting through natural daily activities and routines.
Week 6		Assess and review week.	It is useful at regular intervals for teachers to consider the learning that has taken place over a term (or half term), assess and review children's understanding of the learning and use this to inform where the children need to go next.

		Year 3 Summer I	
	Links to Content Domain	Skills	Knowledge
Week 1 Counting, sequencing in the context of statistics	3N1b 3C6	<ul> <li>Count from 0 in multiples of 4, 8, 50 and 100.</li> <li>Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.</li> <li>Describe and extend number sequences involving counting on or back in different steps.</li> <li>Interpret (and present data) using bar charts, pictograms and</li> </ul>	Children use their counting, sequencing and multiplication facts knowledge in the context of handling data. The emphasis for the handling data should be on interpreting information, though there may be some mention of presentation, particularly for creating scales on bar charts by
Week 2		tables.	counting in equal steps.
Week 2 Addition and subtraction in the practical context of measures.	3C1 3C2 3C3 3C4 3M7 3M1a 3M2a 3M9b 3M1b 3M2b 3M9c 3M1c	<ul> <li>Add and subtract mentally: <ul> <li>a three-digit number and ones</li> <li>a three-digit number and tens</li> <li>a three-digit number and hundreds.</li> </ul> </li> <li>Add numbers with up to three digits, using formal written method of columnar addition.</li> <li>Subtract numbers with up to three digits, using formal written method of columnar subtraction.</li> <li>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method).</li> <li>Select a mental strategy appropriate for the numbers involved in the calculation.</li> <li>Understand and use take away and difference for subtraction, deciding on the most efficient method for the numbers involved, irrespective of context.</li> <li>Estimate the answer to a calculation and use inverse operations to check the answers.</li> <li>Solve problems involving money and measures and simple problems involving passage of time.</li> <li>Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</li> <li>Measure the perimeter of simple shapes.</li> <li>Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).</li> </ul>	Children rehearse their skills of mental and written addition and subtraction in the context of measures, including perimeter. Children should engage in practical measuring activities and solve calculations based on the measurements they have made. This could involve estimating length, mass and capacity then accurately measuring and calculating the difference between the estimate and the actual measurement. Other contexts should also be used. Children should continue to count in ones, tens and hundreds. Children should also mentally calculate with two-digit numbers in which the answer is a three-digit number.
	3M2c 3M9d		
Week 3 Multiplication and division in the practical context of measures.	3C6 3C7 3C7	<ul> <li>Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.</li> <li>Write and calculate mathematical statements for multiplication using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.</li> <li>Write and calculate mathematical statements for division using the multiplication tables that they know, including for two-digit numbers divided by one-digit numbers, using mental and progressing to formal written methods.</li> <li>Select a mental strategy appropriate for the numbers involved in the calculation.</li> <li>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> <li>Solve problems involving money and measures and simple problems involving passage of time.</li> <li>Solve problems, including missing number problems involving multiplication and division, including positive integer scaling problems.</li> </ul>	Children rehearse their skills of mental and written multiplication and division in the context of measures, including perimeter of regular shapes. Children should engage in practical measuring activities and solve calculations based on the measurements they have made.
Week 4 2-D shape and angles	3G3a 3G2 3G4a 3G4b 3G4b	<ul> <li>Draw 2-D shapes and describe them.</li> <li>Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</li> <li>Recognise that angles are a property of a shape or a description of a turn.</li> <li>Identify right angles, recognise that two right angles make a half turn, three make three quarters of a turn and four a complete turn.</li> <li>Identify whether angles are greater than or less than a right angle.</li> <li>Compare and sort common 2-D and 3-D shapes and everyday objects. (Year 2 objective)</li> </ul>	Children make links between their developing knowledge of shape and the language related to the position of lines/sides in relation to each other and also the angles made where lines/sides meet. This is an understanding of angles as a measure of turn, but the 'turn' is static i.e. the sides of the shape are not turning.  The angle understanding also incorporates a dynamic understanding in which movement is made.
Week 5 Addition and subtraction involving money	<u>3F1a</u> <u>3F1a</u>	<ul> <li>Count up and down in tenths.</li> <li>Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10.</li> <li>Identify the value of each digit to one decimal place.</li> </ul>	Children may require further learning on decimal notation prior to or during this unit. It is often difficult for children to make the link between their understanding of hundreds, tens and units

		Read and write numbers with one decimal place.	and £ and p notation (the 10p coins do not go in
		Compare and order numbers with one decimal place.	the 'tens' column when using $\pounds$ and p notation).
		Continue to recognise and use symbols for pounds (£) and pence (p) and understand that the decimal point separates pounds and pence.	
		• Recognise that ten 10p coins are equivalent to £1 and that each coin is $\frac{1}{10}$ of £1.	
		<ul> <li>Add and subtract amounts of money to give change, using both £ and p in practical contexts.</li> </ul>	
		Solve problems involving money.	
		<ul> <li>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method).</li> </ul>	
		<ul> <li>Understand and use take away and difference for subtraction, deciding on the most efficient method for the numbers involved, irrespective of context.</li> </ul>	
		<ul> <li>Select a mental strategy appropriate for the numbers involved in the calculation.</li> </ul>	
		<ul> <li>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> </ul>	
Week 6	3G3b	<ul> <li>Make 3-D shapes using modelling materials.</li> </ul>	Children embed their learning of the properties
3-D shape	<u>3G3b</u>	<ul> <li>Recognise 3-D shapes in different orientations and describe them.</li> <li>Compare and sort common 2-D and 3-D shapes and everyday objects. (Year 2 objective)</li> </ul>	3-D shape, making shapes in different ways e.g. creating 3-D shapes using straws and plasticine; Clixi, Polydron or other construction materials. The emphasis of the learning should be on
			children's accurate use of language when making, identifying and describing shapes.

		Year 3 Summer 2	
	Links to Content Domain	Skills	Knowledge
Week 1 Place value in the context of measures	3N1b 3N2b 3N3	<ul> <li>Count from 0 in multiples of 4, 8, 50 and 100.</li> <li>Find 1, 10 or 100 more or less than a given number.</li> <li>Recognise the place value of each digit in a three-digit number (hundreds, tens and ones).</li> <li>Identify the value of each digit to one decimal place.</li> </ul>	Much of the learning of place value can be put into the context of measures, through looking at number lines on different measuring tools and comparing and ordering measurements.  Scales on measuring instruments can be used as the
	3N2a 3N4 3N2a	<ul> <li>Compare and order numbers up to 1000.</li> <li>Identify, represent and estimate numbers using different representations, including the number line.</li> <li>Read and write numbers up to 1000 in numerals and in</li> </ul>	context for counting and sequences with equal step size.  Measurement also allows children to experience numbers in different ways.
	<u>51424</u>	<ul> <li>words.</li> <li>Solve problems involving measures and simple problems involving passage of time.</li> </ul>	
Week 2 Mental calculation in a variety of contexts, including money, measures and statistics	<u>3C1</u>	<ul> <li>Add and subtract mentally a three-digit number and ones, tens and hundreds.</li> <li>Derive and use addition and subtraction facts for 100.</li> <li>Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul> <li>a 2-digit number and ones</li> <li>a 2-digit number and tens</li> <li>two 2-digit numbers</li> <li>adding three 1-digit numbers. (Year 2 objective)</li> </ul> </li> <li>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method).</li> <li>Understand and use take away and difference for subtraction, deciding on the most efficient method for the numbers involved, irrespective of context.</li> <li>Select a mental strategy appropriate for the numbers involved in the calculation.</li> <li>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> <li>Solve problems involving money and measures and simple problems involving passage of time.</li> </ul>	Children should secure their knowledge and understanding of mental calculation skills in a variety of contexts. The learning should include decision making around why it is most appropriate to solve these calculations using a mental method.  Children should also mentally calculate with two-digit numbers in which the answer is a three-digit number.
Week 3	3C6 3F1c	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.      Recognise and use fractions as numbers: unit fractions and	Children's understanding of fractions is consolidated in
Fractions in practical contexts	3F2 3F1b	non-unit fractions with small denominators.  Recognise and show, using diagrams, equivalent fractions with small denominators.  Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.  Show practically or pictorially that a fraction is one whole number	the application in a variety of different contexts. Children should solve a variety of problems involving fractions, and seeing and using them in different ways. Children's understanding of fractions should go beyond the 0-1 interval.
		divided by another (for example, $\frac{3}{4}$ can be interpreted as $3 \div 4$ ).	
Week 4 Measures	3M7 3M1a 3M2a 3M9b 3M1b 3M2b 3M9c 3M1c 3M2c 3M2c 3M9d	Measure the perimeter of simple 2-D shapes. Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). Solve problems involving measures.	Children estimate and measure lengths (link to jumping and throwing in PE), mass and volume/capacity in real contexts. The learning also includes solving problems by calculating perimeter using mental and written strategies.
Week 5 Statistics	3S1 3S2	<ul> <li>Interpret and present data using bar charts, pictograms and tables.</li> <li>Solve one-step and two-step questions such as 'How many</li> </ul>	Children use the measurements made in the previous week to present and interpret data in different forms. They should discuss the value of presenting
		more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables.	information in tables, pictograms and bar charts and evaluate the effectiveness of each type of presentation.
Week 6		Assess and review week	It is useful at regular intervals for teachers to consider the learning that has taken place over a term (or half term), assess and review children's understanding of the learning and use this to inform where the children need to go next.

# **Whole School Domain Progression**

		Numbe	er and place value; ap	proximation and estimation	ation / rounding (KS2)		
Strand	Early Years outcomes	National Curriculum reference Year 1	National Curriculum reference Year 2	National Curriculum reference Year 3	National Curriculum reference Year 4	National Curriculum reference Year 5	National Curriculum reference Year 6
N1	Nursery Outcomes Recite numbers past 5. Say one number name for each item from 1-5. Know that the last number reached when	1N1a Count to and across 100, forward and backwards, beginning with 0 or 1, or from any given number	2N1 Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward		4N1 Count in multiples of 6, 7, 9, 25 and 1000	5N1 Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000	
Counting (in multiples)	counting a set of objects tells you have many there is in total.	1N1b Count in multiples of twos, fives and tens		3N1b Count from 0 in multiples of 4, 8, 50 and 100			
	Reception Outcomes (ELG) Verbally count beyond 20, recognising the pattern of the counting system.						
	Nursery Outcomes Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. Experiment with their own symbols and marks as well as numerals.		2N2a Read and write numbers to at least 100 in numerals and in words	3N2a Compare and order numbers up to 1000 Read and write numbers to 1000 in numerals and in words	4N2a Order and compare numbers beyond 1000	5N2 Read, write, order and compare numbers to at least 1 000 000	6N2 Read, write, order and compare numbers up to 10 000 000
N2 Read, write, order and	Reception Outcome Link the number symbol (numeral) with its cardinal number value. (1-10)						
compare	Nursery Outcomes Compare quantities saying 'lots' 'more' and 'same'.	1N2b Given a number, identify one more and one less	2N2b Compare and order numbers from 0 up to 100; use <, > and = signs	3N2b Find 10 or 100 more or less than a given number	4N2b Find 1000 more or less than a given number		
	Reception Outcomes (ELG) Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.	1N2c Read and write numbers from 1 to 20 in numerals and words					
N3 Place value;			2N3 Recognise the place value of each digit in a two-digit number (tens, ones)	Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)	4N3a Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones)	5N3a  Determine the value of each digit in numbers up to 1 000 000	6N3  Determine the value of each digit in numbers up to 10 000 000
Roman numerals	_				4N3b Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the	5N3b Read Roman numerals to1000 (M) and recognise years written in Roman numerals	_

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					concept of zero and place		
N4 Identify, represent and estimate; rounding	Nursery Outcomes Show 'finger numbers' up to 5. Subitise up to 3 objects. Link numerals and amounts: for example, showing the right number of objects up to 5.  Reception Outcome (ELG) Link numeral with cardinal	IN4 Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least	2N4 Identify, represent and estimate numbers using different representations, including the number line	3N4 Identify, represent and estimate numbers using different representations	value  4N4a  Identify, represent and estimate numbers using different representations	5N4 Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000	6N4 Round any whole number to a required degree of accuracy
rounding	number value (1-10) Subitise (recognise quantities without counting) up to 5				4N4b Round any number to the nearest 10, 100 or 1000		
N5 Negative numbers					4N5 Count backwards through zero to include negative numbers	5N5 Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero	6N5 Use negative numbers in context, and calculate intervals across zero
<b>N6</b> Number problems			2N6 Use place value and number facts to solve problems	3N6 Solve number problems and practical problems involving 3N1–3N5	4N6 Solve number and practical problems that involve 4N1– 4N5 and with increasingly large positive numbers	5N6 Solve number problems and practical problems that involve 5N1–5N5	6N6 Solve number problems and practical problems that involve 6N2–6N5
		Add	lition, subtraction, mu	ı <mark>ltiplication and divisi</mark>	on (calculations)		
Strand	Early Years outcomes	National Curriculum reference Year 1	National Curriculum reference Year 2	National Curriculum reference Year 3	National Curriculum reference Year 4	National Curriculum reference Year 5	National Curriculum reference Year 6
<b>C1</b> Add /	Reception Outcome (ELG) Automatically recall number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.	Represent and use number bonds and related subtraction facts within 20	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100	Add and subtract numbers mentally, including: - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds	TOTOLOGICAL 4	Add and subtract numbers mentally with increasingly large numbers	Toloronoe Teal o
subtract mentally			2C1b  Add and subtract numbers mentally, including: - a two-digit number and ones - a two-digit number and tens - two two-digit numbers - adding three one-digit numbers				

3C2

1C2a

2C2

5C2

4C2

C2 Add / subtract using written methods	Add and subtract one-digit and two-digit numbers to 20, including zero  1C2b  Read, write and interpret mathematical statements	Add and subtract numbers using concrete objects and pictorial representations, including: - a two-digit number and ones - a two-digit number and tens - two two-digit numbers -adding three one-digit numbers	Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	
	involving addition (+), subtraction (–) and equals (=) signs	2C3	202	4C3	502	603
C3 Estimate, use inverses and check		To recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems	3C3 Estimate the answer to a calculation and use inverse operations to check answers	Estimate and use inverse operations to check answers to a calculation	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
C4 Add/subtr act to solve problems	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 =	Solve problems with addition and subtraction: - using concrete objects and pictorial representations, including those involving numbers, quantities and measures - applying their increasing knowledge of mental and written methods	3C4 Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
C5 Propertie					5C5a Identify multiples and factors, including finding all factor pairs of a number and common factors of two numbers	6C5 Identify common factors, common multiples and prime numbers
s of number (multiples , factors,					5C5b Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers	
primes, squares and cubes)					5C5c Establish whether a number up to 100 is prime and recall prime numbers up to 19 5C5d	
					Recognise and use square numbers and cube numbers, and the notation for squared  (²) and cubed (³)	
C6		2C6 Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables,	3C6 Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	4C6a Recall multiplication and division facts for multiplication tables up to 12 x 12	5C6a Multiply and divide numbers mentally drawing upon known facts	6C6 Perform mental calculations, including with mixed operations and large numbers

					1		
Multiply /			including recognising odd and even numbers				
divide			even numbers		4C6b	5C6b	
mentally					Use place value, known and	Multiply and divide whole	
					derived facts to multiply and	numbers and those involving	
					divide mentally, including:	decimals by 10, 100 and 1000	
					multiplying by 0 and 1;	decimals by 10, 100 and 1000	
					dividing by 1; multiplying		
					together three numbers		
					4C6c		
					Recognise and use factor		
					pairs and commutativity in		
					mental calculations		
			2C7	3C7	4C7	5C7a	6C7a
			Calculate mathematical	Write and calculate	Multiply two-digit and three-	Multiply numbers up to 4	Multiply multi-digit numbers
			statements for multiplication	mathematical statements for	digit numbers by a one-digit	digits by a one-or two-digit	up to 4 digits by a two-digit
			and division within the	multiplication and division	number using formal written	number using a formal written	whole number using the
			multiplication tables and write	using the multiplication tables	layout	method, including long	formal written method of long
			them using the multiplication	that children know, including		multiplication for two-digit	multiplication
			(x), division (÷) and equals (=)	for two-digit numbers times		numbers	
			signs	one-digit numbers, using			
				mental and progressing to			
				formal written methods		5C7b	6C7b
C7						Divide numbers up to 4 digits	Divide numbers up to 4 digits
Multiply /						by a one-digit number using	by a two-digit whole number
divide						the formal written method of	using the formal written
using						short division and interpret	method of long division, and
written						remainders appropriately for	interpret remainders as whole
methods						the context	number remainders, fractions,
							or by rounding, as appropriate
							for the context
							6C7c
							Divide numbers up to 4 digits
							by a two-digit number using
							the formal written method of
							short division where
							appropriate, interpreting
							remainders according to the
	Number Cute and a	1C8	2C8	3C8	4C8	EC0-	context
60	Nursery Outcomes Solve some real-world		Solve problems involving		Solve problems involving	<b>5C8a</b> Solve problems involving	6C8 Solve problems involving
C8		Solve one-step problems involving multiplication and	multiplication and division,	Solve problems, including missing number problems,	multiplying and adding,	multiplication and division	addition, subtraction,
Solve	mathematical problems with	division, by calculating the	using materials, arrays,	involving multiplication and	including using the distributive	including using their	multiplication and division
problems	numbers up to 5,	answer using concrete	repeated addition, mental	division, including integer	law to multiply two-digit	knowledge of factors and	maniphodion and division
(commut		objects, pictorial	methods, and multiplication	scaling problems and	numbers by one digit, integer	multiples, squares and cubes	
ative,	Reception Outcomes (ELG)	representations and arrays	and division facts, including	correspondence problems in	scaling problems and harder	maniples, squares and cubes	
associativ	Explore and represent	with the support of the	problems in contexts	which n objects are	correspondence problems		
e,	patterns within numbers up to	teacher		connected to m objects	such as n objects are		
distributiv	10, including evens and odds,				connected to m objects		
e and all	double facts and how						
four	quantities can be distributed						
operation	evenly.						
s)	ovomy.						
3)						5C8b	
				I	1	3000	

						Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign 5C8c Solve problems involving	
						multiplication and division including scaling by simple fractions and problems involving simple rates	
C9			2C9a Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot				GC9 Use their knowledge of the order of operations to carry out calculations involving the four operations
Order of operation s			2C9b  Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot				
			· ·	ecimals and percenta			
Strand	Early Years outcomes	National Curriculum reference Year 1	National Curriculum reference Year 2	National Curriculum reference Year 3	National Curriculum reference Year 4	National Curriculum reference Year 5	National Curriculum reference Year 6
F1 Recognis e, find,	Reception Outcomes Halving and sharing objects practically.	of an object, shape or quantity	2F1a Recognise, find, name and write fractions 1/3, ¼, 2/4 and ¾ of a length, shape, set of objects or quantity	3F1a Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10	4F1 Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten		
write, name and count fractions		1F1b Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	<b>2F1b</b> Write simple fractions [e.g.: ½ of 6 = 3]	3F1b Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators  3F1c			
				Recognise and use fractions as numbers:			

			1	T	
		unit fractions and non-unit			
		fractions with small			
		denominators			
	2F2	3F2	4F2	5F2a	6F2
	Recognise the equivalence of	Recognise and show, using	Recognise and show, using	Recognise mixed numbers	Use common factors to
	2/4 and 1/2	diagrams, equivalent fractions	diagrams, families of common	and improper fractions and	simplify fractions; use
		with small denominators	equivalent fractions	convert from one form to the	common multiples to express
			·	other; write mathematical	fractions in the same
го				statements >1 as a mixed	denomination
_ F2				number [e.g.: 2/5 + 4/5 = 6/5=	
Equivalen				1 1/5]	
t fractions				5F2b	
				Identify name and write	
				equivalent fractions of a given	
				fraction, represented visually,	
				including tenths and	
<b>5</b> 0		050		hundredths	050
F3		3F3		5F3	6F3
Comparin		Compare and order unit		Compare and order fractions	Compare and order
g and		fractions and fractions with		whose denominators are all	fractions, including
ordering		the same denominators		multiples of the same number	fractions >1
fractions					
Hadiono		3F4	4F4	5F4	6F4
F4			Add and subtract fractions	Add and subtract fractions	Add and subtract fractions
Add /		Add and subtract fractions	with the same denominator	with the same denominator	with different denominators
		with the same denominator	with the same denominator	and denominators that are	
subtract		within one whole [e.g.: 5/7 +			and mixed numbers, using the
fractions		1/7= 6/7]		multiples of the same number	concept of equivalent
					fractions
				5F5	6F5a
					Multiply simple pairs of proper
				mixed numbers by whole	fractions, writing the answer
F5				numbers, supported by	in its simplest form [e.g.: ¼ ×
				materials and diagrams	$\frac{1}{2} = \frac{1}{8}$
Multiply /					
divide					
fractions -					6F5b
					Divide proper fractions by
					whole numbers [e.g.: 1/3 ÷ 2
			450-	550-	= 1/6]
			4F6a	5F6a	6F6
F6			Recognise and write decimal	Read and write decimal	Associate a fraction with
			equivalents to 1/4, 1/2, 3/4	numbers as fractions [e.g.:	division to calculate decimal
Fractions				0.71 = 71/100]	fraction equivalents (e.g.:
/					0.375) for a simple fraction
decimals					[e.g.: 3/8]
equivalen			4F6b	5F6b	
· ce			Recognise and write decimal	Recognise and use	
30			equivalents of any number of	thousandths and relate them	
			tenths or hundredths	to tenths, hundredths and	
				decimal equivalents	
F7			4F7	5F7	
			Round decimals with one	Round decimals with two	
Rounding			decimal place to the nearest	decimal places to the nearest	
decimals			whole number	whole number and to one	
[KS2]			micio mamboi	decimal place	
			l	dodinai piace	

		1					
F8					4F8 Compare numbers with the	<b>5F8</b> Read, write, order and	
Compare					same number of decimal	compare numbers with up to	
and order					places up to two decimal	three decimal places	
decimals					places	•	
					4F9		6F9a
					Find the effect of dividing a		Identify the value of each digit
					one- or two-digit number by		to three decimal places and
					10 and 100, identifying the		multiply and divide numbers
					value of the digits in the answer as ones, tenths and		by 10, 100 and 1000 giving answers up to three decimal
F9					hundredths		places
Multiply /					Harlardanio		6F9b
divide							Multiply one-digit numbers
decimals							with up to two decimal places
							by whole numbers
							6F9c
							Use written division methods
							in cases where the answer
							has up to two decimal places
				3F10	4F10a	5F10	6F10
				Solve problems that involve	Solve problems involving	Solve problems involving	Solve problems which require
				3F1–3F4	increasingly harder fractions	numbers up to three	answers to be rounded to
F10					to calculate quantities and	decimal places	specified degrees of accuracy
Solve					fractions to divide quantities,		
problems					including non-unit fractions		
with					where the answer is a whole		
fractions					number		
and					4F10b Solve simple measure and		
decimals					money problems involving		
					fractions and decimals to two		
					decimal places		
F11						5F11	6F11
Fractions						Recognise the per cent	Recall and use equivalences
/ decimal						symbol (%) and understand	between simple fractions,
/						that per cent relates to 'number of parts per hundred';	decimals and percentages, including in different contexts
percenta						write percentages as a	including in different contexts
ge						fraction with denominator	
equivalen						hundred, and as a decimal	
ce						,	
F12						5F12	
Solve						Solve problems which require	
problems						knowing percentage and	
with						decimal equivalents of ½, ¼, 1/5, 2/5, 4/5 and those	
percenta						fractions with a denominator	
ges						of a multiple of 10 or 25	
<u> </u>			Rati	o and proportion	<u> </u>	51 & HIGHIPTO OF TO OF 20	
-		Notional Commissions			Noticed Committee	National Commissions	National Commission
Strand	Early Years outcomes	National Curriculum	National Curriculum	National Curriculum	National Curriculum	National Curriculum	National Curriculum
	Early rears outcomes	reference Year 1	reference Year 2	reference Year 3	reference Year 4	reference Year 5	reference Year 6

				T		1	CD4
							<b>6R1</b> Solve problems involving the
R1							relative sizes of two
Relative							quantities, where missing
sizes,							values can be found by using
similarity							integer multiplication and
							division facts
R2							6R2
Use of							Solve problems involving the
percentag							calculation of percentages
es for							[e.g.: of measures such as
compariso							15% of 360] and the use of
n							percentages for comparison
							6R3
R3							Solve problem involving
Scale							similar shapes where the
factors							scale factor is known or can
							be found
R4							6R4
Unequal							Solve problems involving unequal sharing and grouping
sharing							using knowledge of fractions
and							and multiples
grouping							and malapies
				Algebra			
Strand	Early Years outcomes	National Curriculum					
Otrana	Larry Tears outcomes	reference Year 1	reference Year 2	reference Year 3	reference Year 4	reference Year 5	reference Year 6
A1							6A1
A1 Missing							Express missing number
Missing number							
Missing number problems							Express missing number
Missing number problems expressed							Express missing number
Missing number problems expressed in algebra							Express missing number problems algebraically
Missing number problems expressed in algebra							Express missing number problems algebraically  6A2
Missing number problems expressed in algebra  A2 Simple							Express missing number problems algebraically
Missing number problems expressed in algebra  A2 Simple formulae							Express missing number problems algebraically  6A2
Missing number problems expressed in algebra  A2 Simple formulae expressed							Express missing number problems algebraically  6A2
Missing number problems expressed in algebra  A2 Simple formulae expressed in words							Express missing number problems algebraically  6A2 Use simple formulae
Missing number problems expressed in algebra  A2 Simple formulae expressed in words  A3							Express missing number problems algebraically  6A2 Use simple formulae
Missing number problems expressed in algebra  A2 Simple formulae expressed in words  A3 Generate							Express missing number problems algebraically  6A2 Use simple formulae  6A3 Generate and describe linear
Missing number problems expressed in algebra  A2 Simple formulae expressed in words  A3 Generate and							Express missing number problems algebraically  6A2 Use simple formulae
Missing number problems expressed in algebra  A2 Simple formulae expressed in words  A3 Generate and describe							Express missing number problems algebraically  6A2 Use simple formulae  6A3 Generate and describe linear
Missing number problems expressed in algebra  A2 Simple formulae expressed in words  A3 Generate and describe linear							Express missing number problems algebraically  6A2 Use simple formulae  6A3 Generate and describe linear
Missing number problems expressed in algebra  A2 Simple formulae expressed in words  A3 Generate and describe linear number							Express missing number problems algebraically  6A2 Use simple formulae  6A3 Generate and describe linear
Missing number problems expressed in algebra  A2 Simple formulae expressed in words  A3 Generate and describe linear number sequence							Express missing number problems algebraically  6A2 Use simple formulae  6A3 Generate and describe linear
Missing number problems expressed in algebra  A2 Simple formulae expressed in words  A3 Generate and describe linear number sequence s							Express missing number problems algebraically  6A2 Use simple formulae  6A3 Generate and describe linear number sequences
Missing number problems expressed in algebra  A2 Simple formulae expressed in words  A3 Generate and describe linear number sequence s  A4							Express missing number problems algebraically  6A2 Use simple formulae  6A3 Generate and describe linear number sequences
Missing number problems expressed in algebra  A2 Simple formulae expressed in words  A3 Generate and describe linear number sequence s  A4 Number							6A2 Use simple formulae  6A3 Generate and describe linear number sequences  6A4 Find pairs of numbers that
Missing number problems expressed in algebra  A2 Simple formulae expressed in words  A3 Generate and describe linear number sequence s  A4 Number sentences							6A2 Use simple formulae  6A3 Generate and describe linear number sequences  6A4 Find pairs of numbers that satisfy an equation with two
Missing number problems expressed in algebra  A2 Simple formulae expressed in words  A3 Generate and describe linear number sequence s  A4 Number sentences involving							6A2 Use simple formulae  6A3 Generate and describe linear number sequences  6A4 Find pairs of numbers that
Missing number problems expressed in algebra  A2 Simple formulae expressed in words  A3 Generate and describe linear number sequence sequence sequences involving two							6A2 Use simple formulae  6A3 Generate and describe linear number sequences  6A4 Find pairs of numbers that satisfy an equation with two
Missing number problems expressed in algebra  A2 Simple formulae expressed in words  A3 Generate and describe linear number sequence s  A4 Number sentences involving							6A2 Use simple formulae  6A3 Generate and describe linear number sequences  6A4 Find pairs of numbers that satisfy an equation with two

Enumerat e all possibilitie							Enumerate possibilities of combinations of two variables
s of combinati							
ons of							
				Measurement			
Strand	Early Years outcomes	National Curriculum reference Year 1	National Curriculum reference Year 2	National Curriculum reference Year 3	National Curriculum reference Year 4	National Curriculum reference Year 5	National Curriculum reference Year 6
M1 Compare, describe and order measures	Reception Outcomes  Make comparisons between 2 objects relating to their size, length, weight and capacity.  Reception Outcomes  Compare length, weight and capacity.	1M1 Compare, describe and solve practical problems for: - lengths and heights [e.g.: long/short, longer/ shorter, tall/short, double/half] - mass/weight [e.g.: heavy/light, heavier than, lighter than] - capacity and volume [e.g.: full/empty, more than, less than, half, half full, quarter] - time [e.g.: quicker, slower, earlier, later]	2M1 Compare and order lengths, mass, volume/ capacity and record the results using >, < and =	3M1a Compare lengths(m/cm/mm)	4M1 Compare different measures, including money in pounds and pence		
				3M1b			
				Compare mass (kg/g) 3M1c			
				Compare volume / capacity (I/ml)			
M2 Estimate, measure and read scales		Measure and begin to record the following: - lengths and heights - mass/weight - capacity and volume - time (hours, minutes, seconds)	Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit using rulers, scales, thermometers and measuring vessels	3M2a Measure lengths (m/cm/mm)	Estimate different measures, including money in pounds and pence		
				3M2b			
				Measure mass (kg/g)  3M2c  Measure volume / capacity (l/ml)			
M3 Money	Reception Outcome To use everyday language related to money.	1M3 Recognise and know the value of different denominations of coins and notes	2M3a Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value				
			2M3b Find different combinations of coins that equal the same amounts of money				
M4	Reception Outcome To use everyday language related to time.	1M4a Tell the time to the hour and half past the hour and draw	2M4a Tell and write the time to five minutes, including quarter	3M4a	4M4a		

time, ordering time, duration and outsit of the sequence of th	time, ordering time, and the services on a clock face to show free times ordering time.  Milb Sequence wents in chronological corder single indicated on a clock face to show for the first order to the chronological corder single indicated order to the chronological corder single indicates order si	T . 11:	T	the bearing on a clear force to		Tall and contacts the time of some	Donal comits and assessment times		
These times  White Sequence year before and of time  I white Sequence year before Solve problems involving converting from to to time years to morths; weeks to  Solve problems involving converting between units of years to morths; weeks to  Solve problems involving converting between units of years to morths; weeks to  Solve problems involving converting between units of years to morths; weeks to  Solve problems involving converting from to to to morths and years  I white Solve problems involving converting between units of years to morths; weeks to  Solve problems involving converting between units of years to morths; weeks to  Solve problems involving converting between units of years to morths; weeks to  Solve problems involving converting between units of years to morths; weeks to  Solve problems involving converting between units of years to morths; weeks to  Solve problems involving converting between units of years to morths; weeks to  Solve problems involving converting between units of years to morths; weeks to  Solve problems involving converting between units of years to morths; weeks to  Solve problems involving converting between units of years to morths; weeks to  Solve problems involving converting between units of years to morths; weeks to  Solve problems involving converting between units of years to morths; weeks to  Solve problems involving converting between units of years to morths; weeks to  Solve problems involving converting between units of years to morths; weeks to  Solve problems involving to morths and years  Solve problems involving to morths and years  Solve problems in	The street of time of	Telling		the hands on a clock face to	past/to the hour and draw the	Tell and write the time from	Read, write and convert time		
duration duration and units of time duration and units of time services of time of tim	Sequence events in characteristic of time duration and units of time duration and units of time and sequence of ti	time,		show these times					
direction and units of time services of time intervolved of time i	time, duration and characterisis of time duration and characterisis of time and promotiogal order using language (e.g., before and office). He can be compared to design a promotion of the compared of the co	ordering					12-hour clocks		
duration and units of time shoulding language (see lafters and after, next, first, today, yesterday, tomorrow, morning, discover and after, next, first, today, yesterday, tomorrow, morning, discover and after, next, first, today, yesterday, tomorrow, morning, discover and after, next, first, today, yesterday, tomorrow, morning, discover and after, next, first, today, yesterday, tomorrow, morning, discover and after, next, first, today, yesterday, tomorrow, morning, discover and after, next, first, today, yesterday, tomorrow, morning, discover and after, next, first, today, yesterday, tomorrow, morning, discover and after, next, first, today, yesterday, tomorrow, morning, discover and after, next, first, today, yesterday, yesterday, tomorrow, morning, discover and after a standard after with increasing success from 16 2/1 and write the time from an analogue clock, including using Norwa number of seconds, minutes and hours; use vectority such as a first and the number of decorate the time from a mail and the number of decorate and the number of decorate and the number of degree and last year.  M5  M5  M6  Convert between different units of measurements (e.g.,	duration and units of time sharped points and page of time sharped points of time sharped p			1M4b	2M4b	3M4b	4M4b		
chronicipical order using language (e.g.: before and after, rext. first, today, and district rext. first, today, and after rest. fir	an anialogue clock, 24-hour clocks  an anialogue clock, 24-hour clocks  an anialogue clock, 24-hour clocks  At a comparing the anial comparing and signal and a comparing anial anial anial an			Sequence events in	Compare and sequence	Tell and write the time from	Read, write and convert time		
and units of time and payment of time and the number of minutes and years of the number of minutes and read time of the number of more and read time of the number of the number of more and read time time of more and read time time of the number of more and read time time of more and read time time of the number of th	and units of time alanguage (e.g.: before and after, note, first, today, yesterday, temorrow, more retained and after, note, first, today, yesterday, temorrow, more retained and after, note, first, today, yesterday, temorrow, more retained and after, notedary, death of the number of fideling to dates, including, and not and the number of death of the number of fideling to dates, including, and note and the number of fideling to dates, including the annual retained and read of the number of fideling to dates, including the number of seconds, multiple and nours, use vocabulary such makes and read makes when the makes and read mak			chronological order using		an analogue clock: 24-hour	between analogue and digital		
after, rick, first, today, yestenday, tomorrow, morning, stemoor and stemoor and morning and provided in the number of minutes in an about and the number of morning days of the week, weeks, mornite and years.    Main	afier, next, first, today, yesteratory, somerow, morning, afternoon and participation and participatio	and units			intervale or time	,			
yesterday, tomorrow, morring, circemon and evening)  Recognise at language relating to dates, including days of the week, week, months and years  MAG  SMAC  Tall and write the time from an analogue elock, including using Roman numerials from Ito XII  SMAC  Tall and write the time from an analogue elock, including using Roman numerials from Ito XII  SMAC  SMAC  SMAC  SMAC  SWAC  SWAC  Solve problems involving converting from hours to minutes: minutes is converting between units of minutes: minutes is escorted, years to months; weeks to will time.  MAG  Estimate and fread time with increasing accuracy to the nearest minute; record and compare time in terms of each ordical with pinutes and minutes and the number of days in each month, year and leap year.  MAG  Compare to each month, year and leap year.  MAG  Convert between minutes of the seconds in the seconds in the seconds in the second to the second to the seconds in the second to the second to the seconds in the second to the second to the seconds in the second to	yeaterday, tonorrow, morning, afternoon and eventing  1	of time				olooks .	Z4 Hodi olooks		
morning, afternoon and eventing of the property of the seek, weeks, anonthe and years  MAGE leadings of the week, weeks, anonthe and years  MAGE leadings of the week, weeks, anonthe and years  MAGE leadings of the week, weeks, anonthe and years  MAGE leadings of the week, weeks, anonthe and years  MAGE leadings and tend time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, mutues and hours; use vocabulary such as a sife month, noon and midninght and the number of digs in exhibition, noon and midninght and the number of digs in exhibition, noon and midninght and the number of digs in exhibition, noon and midninght and the number of digs in exhibition, noon and midninght and the number of digs in exhibition. The property of the number of digs in exhibition, the property of the number of digs in exhibition, the property of the number of digs in exhibition. The property of the property of the property of the number of digs in exhibition. The property of the property of the number of digs in exhibition, the property of the property of the number of digs in exhibition. The property of the proper	morning, ditemon and events of MAC MAC Manual Manual Particular of minutes of resisting to disast, including days of the week, weeks, months and years    MAC Manual Manua	O:							
### Part	Recognise and use language control to Market Recognise and use and used and								
Recognise and use language relating to dates, including using Roman to an drift en number of minutes in an hour and the number of hours in a dgy  MM4  Estimate and read time with increasing accuracy to the nearest minute, record and compare time in terms of seconds, minutes and hours in a manufactural from the seconds, second	### Recognise and use language relating to dates, including days of the week, evels, and hour and the number of industs in a day with the same area from the XII and write the time from an analogue clock, morths and years  ### Subve problems involving convening from hours to days the seconds, morths and years  ### Subve problems involving convening from hours to make the time from an analogue clock, and the seconds and seconds, morths and years to make any time to make the time from an analogue clock, and part to make the seconds and seconds, minutes and hours; use vocabilizing such as a ciclock and part to make the seconds in a minute and the number of days in sections, minutes and hours; use vocabilizing such as a ciclock and part to make the seconds in a minute and the number of days in sections, minutes and the number of days in sections and liesp year  #### Subverse to make the seconds in a minute and the number of days in sections, minutes, and the seconds in a minute and the number of days in sections, minutes and the number of days in sections, minutes and the number of days in sections, minutes and the number of days in sections, seconds in a minute and the number of days in sections, minutes and the number of days in sections, seconds in a minute and the number of days in sections, minutes and the number of days in sections, seconds in a minute and the number of days in sections, seconds in a minute and the number of days in seconds in a minute and the number of days in seconds in a minute and the number of days in seconds in a minute and seconds.  #### Convert between different to minute in minute in the number of days in seconds in a minute and number of days in seconds in a minute and number of days in seconds in a minute and seconds in a minute and seconds in a minute and number of days in seconds in a minute and seconds in a minute								
Recognise and use language relating to dates, including using Roman manage locks, including using Roman mumber of minutes in an hour and the number of hours in a day with a summer of hours i	Recognise and use language risiting to dates, including using Roman in an hour and the number of hours in a day north the week, weeks, months and years  Med Estimate and read time with increasing accuracy to the nearest minute; record and compare firm in terms of soconds, minutes and hours; use vocabularly such as all and the number of days in sections, minutes and hours; use vocabularly such as a seconds in a minute and the number of days in second with the number of days in second many particular events or tasked.  MS Convert between minute; record and compare firm in terms of soconds, minutes and hours; use vocabularly such as a seconds in a minute and the number of days in second many particular events or tasked.  Compare durations of events, [e.g.: to calculate the time taken by particular events or tasked]  Convert between metric units of the particular events or minute]  MS Convert between different confinered and metric, but to minute or minute and metric, but to metric, bu								
relating to dates, including days of the week, weeks in the week hours in a day hours in a day and the week hours in a day including using from the week to week to whom increasing accurate time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vacabulary such as a seconds, minutes and hours; use vacabulary such as a seconds, minutes and hours; use vacabulary such as a seconds, minutes and hours; use vacabulary such as a seconds, minutes and hours; use vacabulary such as a second, minutes and hours; use vacabulary such as a second, minutes and hours; use vacabulary such as a second, minutes and hours; use vacabulary such as a second, minutes and hours; use vacabulary such as a second, minutes and hours; use vacabulary such as a second, minutes and hours; use vacabulary such as a second, minutes and hours; use vacabulary such as a second, minutes and hours; use vacabulary such as a second of the properties of the properties of the properties of a second of the properties of the second of the properties of the properties of a second of the properties	relating to dates, including days of the week, weeks sho days months and years  MAC SM44  Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; or clock/kam.pm., moning, afternoon, noon and midnight  MAC Compare durations of eyents, Is a, to occurate time time  MAC Compare durations of eyents, Is a, to occurate time time  MAC Compare durations of eyents, Is a, to occurate time time  MAC Compare durations of eyents, Is a, to occurate the time taken by particular events or testifical units of medicine accuracy (e.g., kilometre on metre; organ and kilogram; tite and millitize)  MAC Convert between different units of measurement (e.g., kilometre on metre; organ and kilogram; tite and millitize)  MAC Convert testification and the compared of the control of the			1M4c	2M4c	3M4c	4M4c	5M4	
relating to dates, including days of the week, week in an an hour and the number of hours in a day    March	relating to dates, including days of the work, weeks, to days, including using free man analogue clock, including using free man analogue converting massurements of a feet man analogue clock, including using supars) in the manutary of the man			Recognise and use language	Know the number of minutes	Tell and write the time	Solve problems involving	Solve problems involving	
days of the week, weeks, months and years    March   M	days of the week, weeks, months and years    Mours in a day			relating to dates, including	in an hour and the number of	from an analogue clock.		converting between units of	
months and years    Numerals from 1 to XII   years to months; weeks to days   SM4d   Estimate and read time with increasing accuracy to the nearest stimular, lecord and accuracy to the nearest stimular, lecord and seconds, minutes and hours; use vocabulary such as o'clock/a.m/p.m., morning, afternoon, noon and midnight   SM4d   Know the number of days in each month, year and leady selection of days in each month, year and leady selection of the selection of days in each month, year and leady bear to day bear to day	months and years    Numerals from 1 to XII								
SM4d Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clooks an jo.m., morning, advances, minutes and hours; use vocabulary such as o'clooks an jo.m., morning, advances, minutes and hours; use vocabulary such as o'clooks an jo.m., morning, advances, minutes and hours; use vocabulary such as o'clooks an jo.m., morning, advances, and advan	### A SM44    Estimate and read traine with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and house, morning, afternoon, noon and midnight    MM4				nouis in a day			unic	
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leap year   3M4f   Compare durations of events, [e.g.: to calculate the time taken by particular events or tasks]   AM5   Convert between different units of measurement [e.g.: kilometre to metre; hour to metric units of measurement [e.g.: kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; fitte and millilitre]   M6   Convert between metric units   SM6   Convert between metric units of measurement [e.g.: kilometre and metre; centimetre and millimetre; gram and kilogram; fitte and millilitre]   M6   Convert between metric units and common imperial units such as inches, pounds and pints of simple 2-D shapes   SM7   Measure and calculate the perimeter of a rectilinear rectinear and calculate the perimeter of a rectilinear rectilinear rections and calculate the perimeter of a rectilinear rectilinear rections and calculate the perimeter of a rectilinear rectilinear rections and calculate the perimeter of a rectilinear rectilinear rections and calculate the perimeter of a rectilinear rectilinear rectilinear rectilinear rections and calculate the perimeter of a rectilinear rectilinear rectilinear rections and calculate the perimeter of a rectilinear rectil	Sam 4r   Compare durations of events, [e.g.: to calculate the time taken by particular events or tesks]   Sm5					in a minute and the number of			
leap year   3M4f   Compare durations of events, [e.g.: to calculate the time taken by particular events or tasks]   AM5   Convert between different units of measurement [e.g.: kilometre to metre; hour to metric units of measurement [e.g.: kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; fitte and millilitre]   M6   Convert between metric units   SM6   Convert between metric units of measurement [e.g.: kilometre and metre; centimetre and millimetre; gram and kilogram; fitte and millilitre]   M6   Convert between metric units and common imperial units such as inches, pounds and pints of simple 2-D shapes   SM7   Measure and calculate the perimeter of a rectilinear rectinear and calculate the perimeter of a rectilinear rectilinear rections and calculate the perimeter of a rectilinear rectilinear rections and calculate the perimeter of a rectilinear rectilinear rections and calculate the perimeter of a rectilinear rectilinear rections and calculate the perimeter of a rectilinear rectilinear rectilinear rectilinear rections and calculate the perimeter of a rectilinear rectilinear rectilinear rections and calculate the perimeter of a rectilinear rectil	Sam 4r   Compare durations of events, [e.g.: to calculate the time taken by particular events or tesks]   Sm5					days in each month, year and			
M5   Convert between different units of measurement [e.g.: kilometre to metric units of measurement of minute]   M6   Convert between different units of measurement [e.g.: kilometre and metric cunits of measurement [e.g.: kilometre and metric centimetre and millililitre]   M6   Convert detween different units of measurement [e.g.: kilometre and metric; centimetre and millililitre]   M7   Measure the perimeter of simple 2-D shapes   M6   M6   M6   M6   M6   M6   M6   M	M5 Convert between different units of measurement [e.g.: kilometre to metre; ounits of measurement in millilitre]  M6 Convert between different units of measurement [e.g.: kilometre to metre; ounits of measurement [e.g.: kilometre and metre; centimetre and metre; centimetre and metre; centimetre and millilitre]  M6 Convert between different units of measurement [e.g.: kilometre to metre; ounits of metric measure [e.g.: kilometre and metre; centimetre and metre; centimetre and millilitre]  M6 Convert metric/im perial  M7 Perimeter perimeter of simple 2–D shapes  M8  M8  M9  M8  M9  M9  M9  M9  M9  M9								
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					4M7b	5M7b	6M7b			
					Find the area of rectilinear shapes by counting squares	Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes	Calculate the area of parallelograms and triangles			
						area or megular shapes	6M7c Recognise when it is possible to use the formulae for the area of shapes			
M8 Volume						5M8 Estimate volume [e.g.: using 1cm3 blocks to build cuboids (including cubes)] and capacity [e.g.: using water]	6M8a  Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm³) and cubic metres (m³), and extending to other units [e.g.: mm³ and km³]			
							6M8b Recognise when it is possible to use the formulae for the volume of shapes			
			Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change	3M9a Add and subtract amounts of money to give change, using both £ and p in practical contexts	4M9 Calculate different measures, including money in pounds and pence	5M9a Use all four operations to solve problems involving measure [money] using decimal notation, including scaling	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate			
M9 Solve problems (a: money; b: length; c:				3M9b Add and subtract lengths (m/cm/mm)		5M9b  Use all four operations to solve problems involving measure [e.g.: length] using decimal notation, including scaling				
mass / weight; d: capacity / volume)				3M9c Add and subtract mass (kg/g)		5M9c Use all four operations to solve problems involving measure [e.g.: mass] using decimal notation, including scaling				
				3M9d Add and subtract volume / capacity (I/mI)		5M9d Use all four operations to solve problems involving measure [e.g.: volume] using decimal notation, including scaling				
	Geometry: properties of shape									

Strand	Early Years outcomes	National Curriculum reference Year 1	National Curriculum reference Year 2	National Curriculum reference Year 3	National Curriculum reference Year 4	National Curriculum reference Year 5	National Curriculum reference Year 6
G1 Recognis e and name common shapes	Beginning to talk about the shapes of everyday objects, e.g. 'round' and 'tall'.  Shows interest in shape by sustained construction activity or by talking about shapes or arrangements.  Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language:	1G1a Recognise and name common 2-D shapes [e.g.: rectangles (including squares), circles and triangles]	2G1a Compare and sort common 2- D shapes and everyday objects				
	'sides', 'corners', 'straight', 'flat'.	1G1b  Recognise and name common 3-D shapes [e.g.: cuboids (including cubes), pyramids and spheres]	2G1b Compare and sort common 3- D shapes and everyday objects				
G2 Describe		pyramius and spheresj	2G2a Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line	3G2 Identify horizontal, vertical lines and pairs of perpendicular and parallel lines	4G2a Compare and classify geometric shapes, including quadrilaterals and triangles based on their properties and sizes	5G2a Use the properties of rectangles to deduce related facts and find missing lengths and angles	6G2a Compare and classify geometric shapes based on their properties and sizes
propertie s and classify shapes			Identify and describe the properties of 3-D shapes including the number of edges, vertices and faces		4G2b Identify lines of symmetry in 2–D shapes presented in different orientations	5G2b Distinguish between regular and irregular polygons based on reasoning about equal sides and angles	6G2b Describe simple 3–D shapes
					4G2c Complete a simple symmetric figure with respect to a specific line of symmetry		
G3 Draw and make shapes and			2G3 Identify 2-D shapes on the surface of 3-D shapes, [e.g.: a circle on a cylinder and a triangle on a pyramid]	<b>3G3a</b> Draw 2–D shapes			6G3a Draw 2–D shapes using given dimensions and angles
relate 2-D to 3-D shapes (including nets)				3G3b  Make 3–D shapes using modelling materials; recognise 3–D shapes in different orientations and describe them		5G3b Identify 3–D shapes including cubes and other cuboids, from 2–D representations	6G3b Recognise and build simple 3D shapes, including making nets
G4 Angles – measurin g and				3G4a Recognise that angles are a property of shape or a description of a turn	4G4 Identify acute and obtuse angles and compare and order angles up to two right angles by size	5G4a Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	6G4a Find unknown angles in any triangles, quadrilaterals and regular polygons
propertie s				3G4b Identify right angles, recognise that two right		<b>5G4b</b> Identify:	6G4b Recognise angles where they meet at a point, are on a

G5 Circles				angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle		- angles at a point and one whole turn (total 360°) - angles at a point on a straight line and ½ a turn (total 180°) - other multiples of 90°  5G4c  Draw given angles and measure them in degrees (°)	straight line, or are vertically opposite, and find missing angles  6G5  Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
			Geometry:	position and direction	on		
Strand	Early Years outcomes	National Curriculum reference Year 1	National Curriculum reference Year 2	National Curriculum reference Year 3	National Curriculum reference Year 4	National Curriculum reference Year 5	National Curriculum reference Year 6
P1 Patterns	Talk about patterns in the environment. For example, stripes on clothes. Use informal language like 'pointy', 'spotty'.  Continue, copy and create repeating patterns.		2P1 Order and arrange combinations of mathematical objects in patterns and sequences				
P2 Describe position, direction and movemen t	Understand positional language with focus on under, over, behind, infront, forwards, backwards.	1P2 Describe position, directions and movement, including half, quarter and three-quarter turns	Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clock-wise and anti-clockwise)		4P2 Describe movements between positions as translations of a given unit to the left/right and up/down	5P2 Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed	6P2 Draw and translate simple shapes on the co-ordinate plane, and reflect them in the axes
P3 Coordinat es					4P3a Describe positions on a 2-D grid as co-ordinates in the first quadrant 4P3b Plot specified points and draw sides to complete a given polygon		6P3  Describe positions on the full co-ordinate grid (all four quadrants)
				Statistics			

Strand	Early Years outcomes	National Curriculum reference Year 1	National Curriculum reference Year 2	National Curriculum reference Year 3	National Curriculum reference Year 4	National Curriculum reference Year 5	National Curriculum reference Year 6
S1			2\$1	3S1	4S1	5S1	6S1
Interpret			Interpret and construct simple	Interpret and present data	Interpret and present discrete	Complete, read and interpret	Interpret and construct pie
and			pictograms, tally charts, block	using bar charts, pictograms	and continuous data using	information in tables,	charts and line graphs and
			diagrams and simple tables	and tables	appropriate graphical	including timetables	use these to solve problems
represent					methods, including bar charts		
data					and time graphs	500	
S2 Solve problems involving data			Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity  2S2b	3S2 Solve one-step and two step questions [e.g.: 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts, pictograms and tables	Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	5S2 Solve comparison, sum and difference problems using information presented in a line graph	
			Ask and answer questions about totalling and comparing categorical data				
S3 Mean average							6S3 Calculate and interpret the mean as an average

# National Curriculum

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\_data/file/381344/Master r final\_national\_curriculum\_28\_Nov.pdf

## Year 3 programme of study

### Number - number and place value

### **Statutory requirements**

Pupils should be taught to:

- count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number; (from Year 4)
- recognise the place value of each digit in a three-digit number (hundreds, tens, ones);
- compare and order numbers up to 1000;
- identify, represent and estimate numbers using different representations;
- read and write numbers up to 1000 in numerals and in words;
- solve number problems and practical problems involving these ideas.

### Notes and guidance (non-statutory)

Pupils now use multiples of 2, 3, 4, 5, 8, 10, 50 and 100.

They use larger numbers to at least 1000, applying partitioning related to place value using varied and increasingly complex problems, building on work in year 2 (for example, 146 = 100 + 40 and 6, 146 = 130 + 16).

Using a variety of representations, including those related to measure, pupils continue to count in ones, tens and hundreds, so that they become fluent in the order and place value of numbers to 1000.

### Number - addition and subtraction

### **Statutory requirements**

Pupils should be taught to:

- add and subtract numbers mentally, including:
  - a three-digit number and ones;
  - a three-digit number and tens;
  - a three-digit number and hundreds;
- add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction; (from Year 4)
- estimate the answer to a calculation and use inverse operations to check answers;
- solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

### **Notes and guidance (non-statutory)**

Pupils practise solving varied addition and subtraction questions. For mental calculations with two-digit numbers, the answers could exceed 100.

Pupils use their understanding of place value and partitioning, and practise using columnar addition and subtraction with increasingly large numbers up to three digits to become fluent (see Mathematics Appendix 1).

### Number - multiplication and division

### **Statutory requirements**

Pupils should be taught to:

- recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables; (from Year 4)
- write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods; (from Year 4)
- solve problems, including missing number problems, involving multiplication and division, including
  positive integer scaling problems and correspondence problems in which n objects are connected to
  m objects.

### Notes and guidance (non-statutory)

Pupils continue to practise their mental recall of multiplication tables when they are calculating mathematical statements in order to improve fluency. Through doubling, they connect the 2, 4 and 8 multiplication tables.

Pupils develop efficient mental methods, for example, using commutativity and associativity (for example,  $4 \times 12 \times 5 = 4 \times 5 \times 12 = 20 \times 12 = 240$ ) and multiplication and division facts (for example, using  $3 \times 2 = 6$ ,  $6 \div 3 = 2$  and  $2 = 6 \div 3$ ) to derive related facts (for example,  $30 \times 2 = 60$ ,  $60 \div 3 = 20$  and  $20 = 60 \div 3$ ).

Pupils develop reliable written methods for multiplication and division, starting with calculations of twodigit numbers by one-digit numbers and progressing to the formal written methods of short multiplication and division.

Pupils solve simple problems in contexts, deciding which of the four operations to use and why. These include measuring and scaling contexts, (for example, four times as high, eight times as long etc.) and correspondence problems in which m objects are connected to n objects (for example, 3 hats and 4 coats, how many different outfits?; 12 sweets shared equally between 4 children; 4 cakes shared equally between 8 children).

### **Number – fractions**

### **Statutory requirements**

Pupils should be taught to:

- count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10;
- recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators;
- recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators;
- recognise and show, using diagrams, equivalent fractions with small denominators;
- add and subtract fractions with the same denominator within one whole [for example,  $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$ ];
- compare and order unit fractions, and fractions with the same denominators;
- solve problems that involve all of the above.

### Notes and guidance (non-statutory)

Pupils connect tenths to place value, decimal measures and to division by 10.

They begin to understand unit and non-unit fractions as numbers on the number line, and deduce relations between them, such as size and equivalence. They should go beyond the [0, 1] interval, including relating this to measure.

Pupils understand the relation between unit fractions as operators (fractions of), and division by integers.

They continue to recognise fractions in the context of parts of a whole, numbers, measurements, a shape, and unit fractions as a division of a quantity.

Pupils practise adding and subtracting fractions with the same denominator through a variety of increasingly complex problems to improve fluency.

### Measurement

### **Statutory requirements**

Pupils should be taught to:

- measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml);
   (from Year 4)
- measure the perimeter of simple 2-D shapes; (from Year 4)
- add and subtract amounts of money to give change, using both £ and p in practical contexts;
- tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks; (from Year 4 and Year 5)
- estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight; (from Year 4)
- know the number of seconds in a minute and the number of days in each month, year and leap year;
- compare durations of events [for example to calculate the time taken by particular events or tasks].

### Notes and guidance (non-statutory)

Pupils continue to measure using the appropriate tools and units, progressing to using a wider range of measures, including comparing and using mixed units (for example, 1 kg and 200g) and simple equivalents of mixed units (for example, 5m = 500cm).

The comparison of measures includes simple scaling by integers (for example, a given quantity or measure is twice as long or five times as high) and this connects to multiplication.

Pupils continue to become fluent in recognising the value of coins, by adding and subtracting amounts, including mixed units, and giving change using manageable amounts. They record £ and p separately. The decimal recording of money is introduced formally in year 4.

Pupils use both analogue and digital 12-hour clocks and record their times. In this way they become fluent in and prepared for using digital 24-hour clocks in year 4.

### **Geometry – properties of shapes**

### **Statutory requirements**

Pupils should be taught to:

- draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them;
- recognise angles as a property of shape or a description of a turn;
- identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle;
- identify horizontal and vertical lines and pairs of perpendicular and parallel lines. (from Year 4 and Year 5)

### Notes and guidance (non-statutory)

Pupils' knowledge of the properties of shapes is extended at this stage to symmetrical and non-symmetrical polygons and polyhedra. Pupils extend their use of the properties of shapes. They should be able to describe the properties of 2-D and 3-D shapes using accurate language, including lengths of lines and acute and obtuse for angles greater or lesser than a right angle.

Pupils connect decimals and rounding to drawing and measuring straight lines in centimetres, in a variety of contexts.

### **Statistics**

### **Statutory requirements**

Pupils should be taught to:

- interpret and present data using bar charts, pictograms and tables;
- solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?']
   using information presented in scaled bar charts and pictograms and tables.

### Notes and guidance (non-statutory)

Pupils understand and use simple scales (for example, 2, 5, 10 units per cm) in pictograms and bar charts with increasing accuracy.

They continue to interpret data presented in many contexts.